

Traumatic Brain Injuries (TBI): Working with Students with TBI

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The University of South Dakota
CENTER FOR DISABILITIES

Objectives

- Participants will be able to:
 - Define brain injury and related terms
 - Identify causes of TBI
 - Identify the prevalence of TBI
 - Identify risk factors of TBI
 - Identify brain structures and name their function
 - Experience some difficulties individuals with brain injury experience
 - Identify classroom strategies for working with students with TBI
 - Identify local, state, and national resources

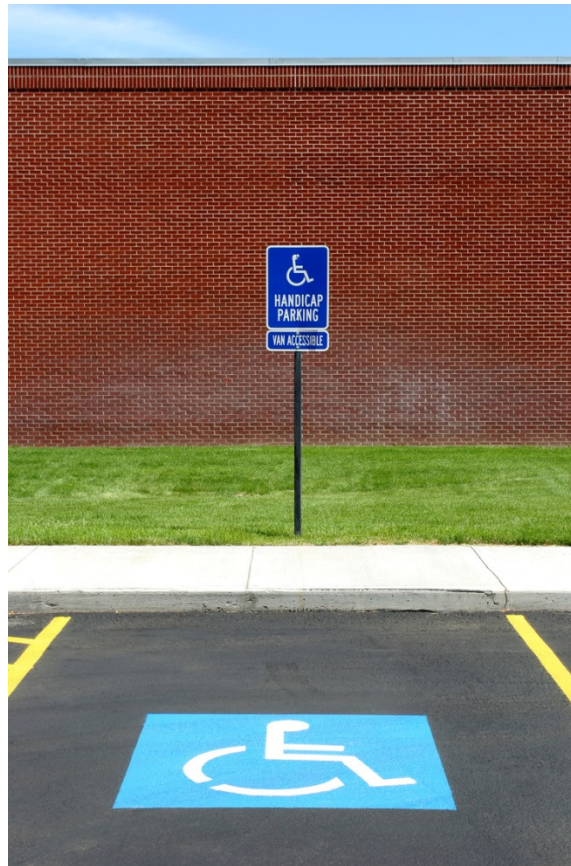


Pre-Test

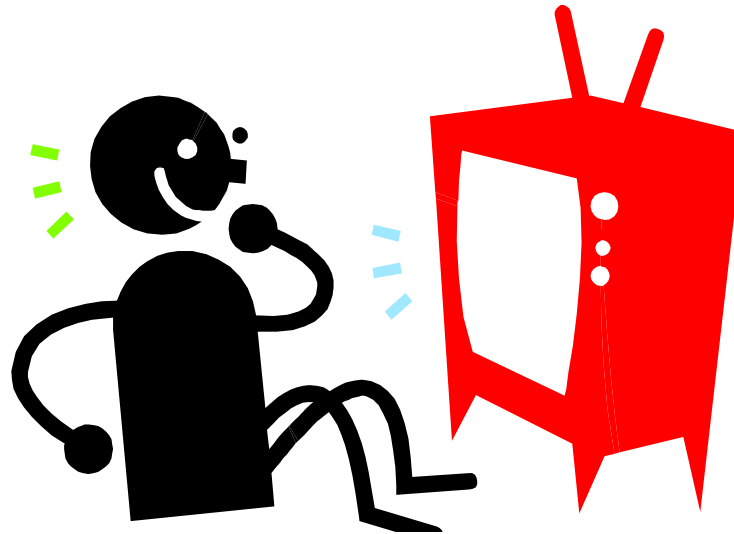


People First Language

By Kathie Snow



Humanizing Brain Injury Video



Definitions

Traumatic Brain Injury: An insult to the brain, not of a degenerative or congenital nature but caused by an external physical force, that may produce a diminished or altered state of consciousness, which results in an impairment of cognitive abilities and/or physical functioning. It can also result in the disturbance of behavioral or emotional functioning. These impairments may be either temporary or permanent and cause partial or total functional disability or psychosocial maladjustment.



Definitions, continued

Acquired Brain Injury: (ABI) is an injury to the brain that has occurred after birth and is not congenital or degenerative. The injury commonly results in a change in neuronal activity, which affects the physical integrity, the metabolic activity, or the functional ability of the cell. The term does not refer to brain injuries induced by birth trauma.



Causes of TBI/ABI

TBI

- Motor Vehicle Crashes
- Falls
- Gunshot Wounds
- Sports Injuries
- Workplace Injuries
- Shaken Baby Syndrome
- Child Abuse
- Domestic Violence
- Military Actions
- Other injuries caused by trauma

ABI

- TBI
- Tumors
- Blood Clots
- Strokes
- Seizures
- Toxic Exposures
- Infections
- Metabolic Disorders
- Neurotoxic Poisoning
- Lack of oxygen to the brain



Incidence and Prevalence

Incidence

Number of cases of a disease having their onset during a prescribed period of time.

Incidence rate of 506 per 100,000 persons.

1.4 MILLION people sustain a TBI in the United States every year. Of these, there are:

- 50,000 deaths
- 235,000 Hospitalizations
- 1,100,000 Emergency Room Visits

Prevalence

Number of cases of a disease present during a particular interval of time.

5.3 MILLION people in the United States live with a disability as a result of TBI.



Risk Factors



Sex

- Male
- Female



Race

- Caucasian
- African American
- American Indian



Age

- 0-4 years
- 5-9 years
- 10-14 years
- 15-19 years
- 20-24 years
- 25-34 years
- 25-34 years
- 35-44 years
- 45-54 years
- 54-64 years
- 65-74 years
- Over 75 years



Severity of Injury

Degree of Injury	#	%	Definition	Glasgow Coma Scale	Signs	Symptoms
Mild	290,000 hospital admissions each year	Up to 80% of injuries are mild	LOC for less than 30 minutes or no LOC	13-15	Amnesia may occur for less than 24 hours, temporary or permanent mental state	Post concussion symptoms
Moderate	No information	10%-30% of injuries are moderate	Coma more than 20-30 minutes, less than 24 hours	9-12	Bruising and bleeding in the brain. Signs on EEG, CT, or MRI.	Some long term problems in one or more areas of life (home, work, community)
Severe	50,000-75,000 persons sustain a severe TBI each year, and between 1/3 & 1/2 of them die	5%-25% are considered severe	Coma longer than 24 hours often lasting days or weeks	3-8	Possible skull fractures with bruising and bleeding. Signs on EEG, CT, or MRI.	Long term impairments in one or more areas of life (home, work, community).



Systems of Care

Acute Hospital Care

Acute Rehabilitation

Skilled Nursing Facility

Post-Acute Rehabilitation

Outpatient Services

Supported Living



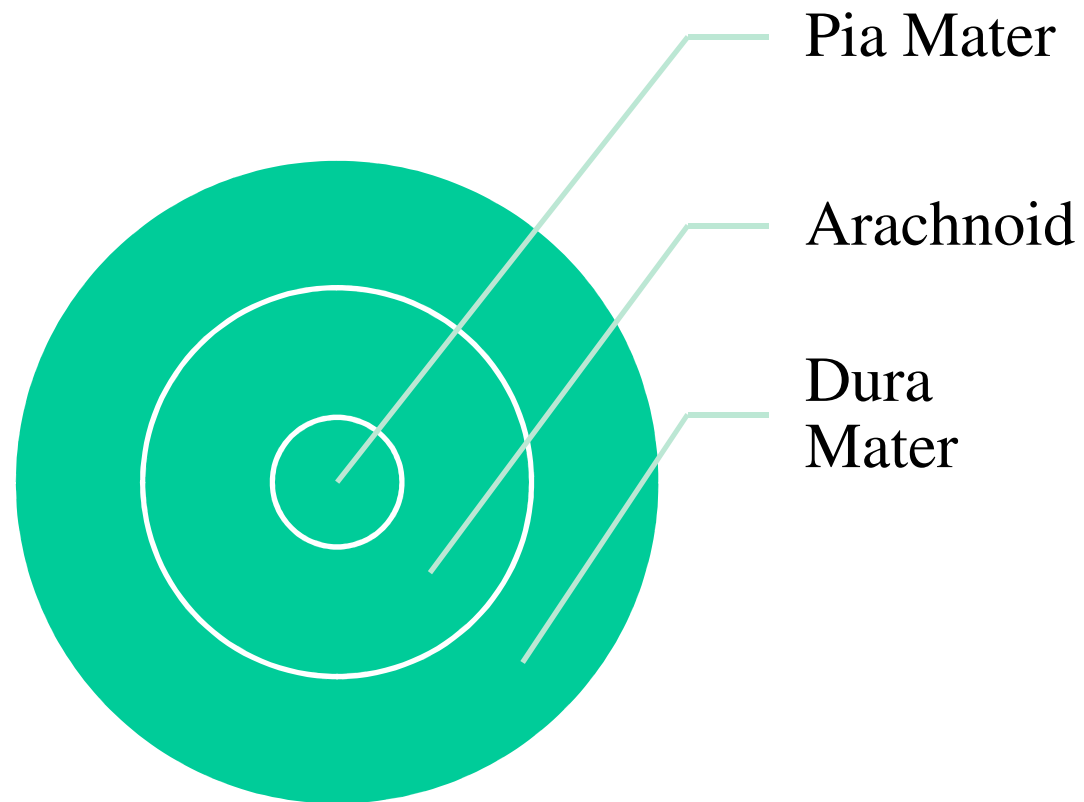
BREAK



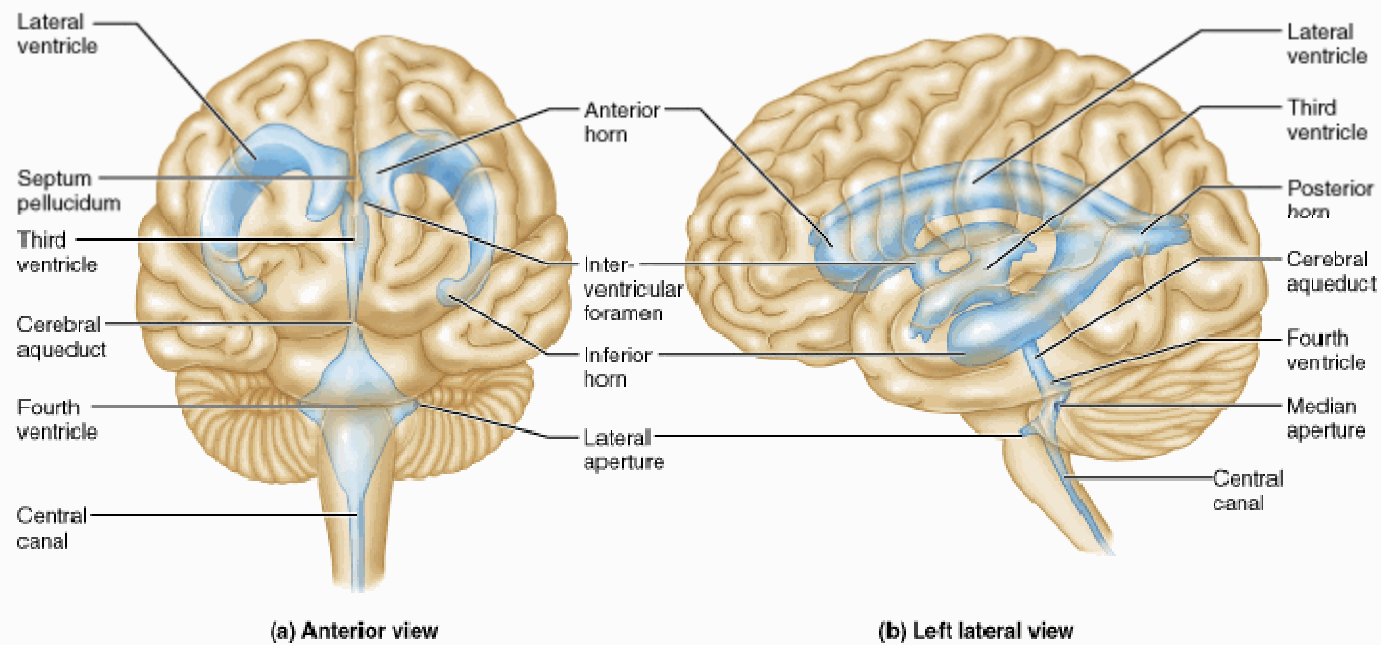
The Brain



Meninges



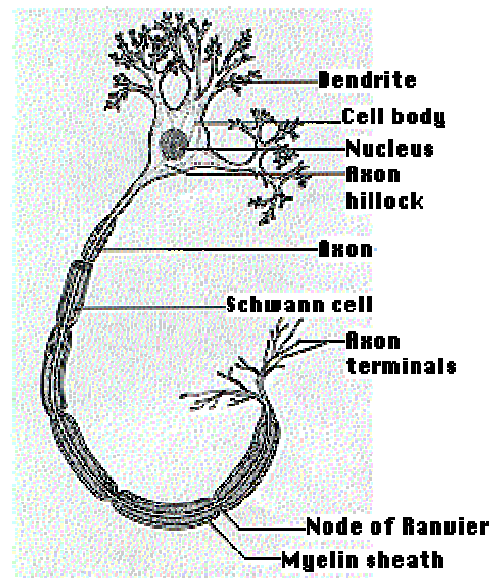
Ventricles



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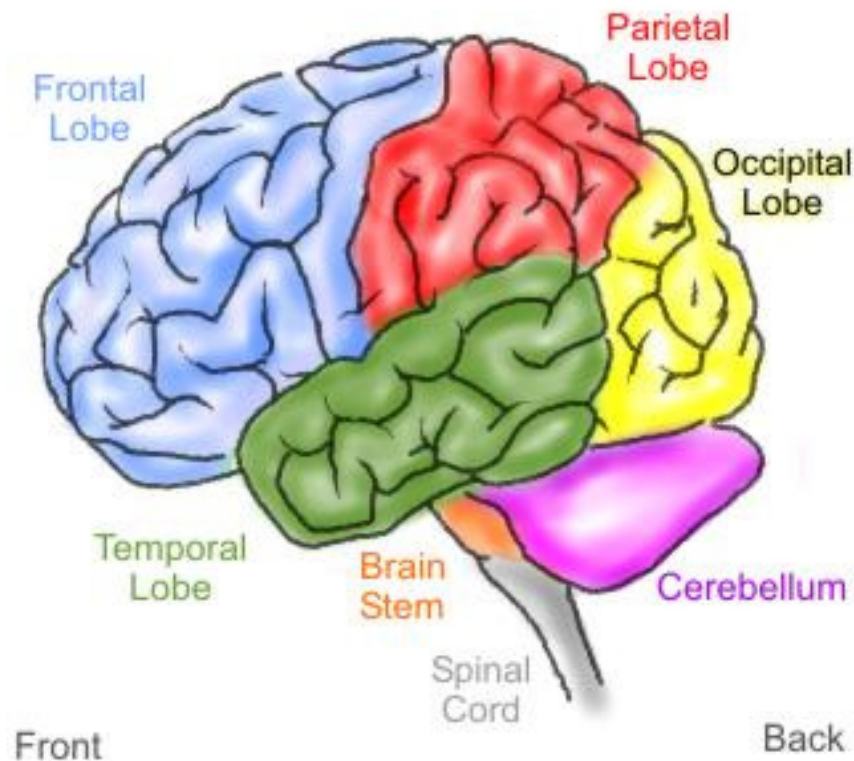


Neurons



Basic parts of the brain

Regions of the Human Brain



Frontal Lobe

Initiation
Problem – Solving
Judgment
Inhibition of behavior
Planning/Anticipation
Self-monitoring
Motor planning
Personality/Emotions
Awareness of abilities/limits
Organization
Attention/Concentration
Mental Flexibility
Speaking
New learning



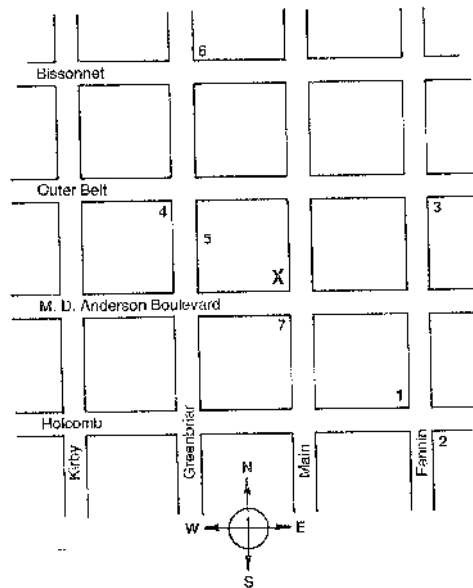
ACTIVITY



ANSWER

18

Answer Map for Taped Sample D



ANSWER

42

Attention Deficits Station Checkbook Register—Participant's Copy

RECORD ALL CHARGES OR CREDITS THAT AFFECT YOUR ACCOUNT

NUMBER	DATE	DESCRIPTION OF TRANSACTION	PAYMENT/DEBIT (-)	DEPOSIT/CREDIT (+)	BALANCE
					\$2347 15
101	3/1	Neiman's	128 17		
102	3/5	K-Mart	75 38		
103	3/5	Veterinarian - Dr. Bites	176 42		
104	3/6	HE&P	289 10		
105	3/6	Stop & Go	15 25		
106	3/6	Dr. Hear- Audiological Services	300 00		
107	3/6	Rent	564 00		
	3/17	Deposit		803 40	
108	3/20	QuickSilver w/draunt	50 00		

REMEMBER TO RECORD AUTOMATIC PAYMENTS/DEPOSITS ON DATE AUTHORIZED

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Attention Deficits Station Checkbook Register—Presenter's Copy

RECORD ALL CHARGES OR CREDITS THAT AFFECT YOUR ACCOUNT

NUMBER	DATE	DESCRIPTION OF TRANSACTION	PAYMENT/DEBIT (-)	DEPOSIT/CREDIT (+)	BALANCE
					\$2347 15
101	3/1	Neiman's	128 17		2218 98
102	3/5	K-Mart	75 38		2143 60
103	3/5	Veterinarian - Dr. Bites	176 42		1967 18
104	3/6	HE&P	289 10		1678 08
105	3/6	Stop & Go	15 25		1662 83
106	3/6	Dr. Hear- Audiological Services	300 00		1362 83
107	3/6	Rent	564 00		798 83
	3/17	Deposit		803 40	1602 23
108	3/20	QuickSilver w/draunt	50 00		1552 23

REMEMBER TO RECORD AUTOMATIC PAYMENTS/DEPOSITS ON DATE AUTHORIZED



Classroom Strategies for Executive Functions

- Memory Book/System
- Sequential lists to complete tasks
- Decrease clutter in the environment
- Ensure you have the attention of the student before you talk to them
- Limit the number of steps in a task
- Structure thinking by using timelines, outlines, flow charts, graphs
- Categorize details using who, what, when, where and why questions
- State problems carefully and modify problems to make the student understand the modifications and reasons
- Demonstrate the process of reaching the correct answer
- Ask questions about alternatives and consequences
- Use real-life problems for group discussion
- Have the student use a checklist to keep on track



Temporal Lobe

Memory

Hearing

Expressive and Receptive Language

Organization and Sequencing



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Was this story about warriors?



Did warriors keep their records
on sticks?



Did early hunters use calendars?



Are memory devices still used
today?



Were there many memory devices
used in ancient times?



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What played a role in the American Revolution?



Who was killed by the salvo fired
in his honor?



How was the American Revolution funded?



How did the deceased acquire his wealth?



What premonition did Morris
experience?



Classroom Strategies for Memory Difficulties

- Use a memory book, date book, journal
- Hang a calendar on the wall and note important dates
- Use cueing systems as a reminder of important times
- Post a map of the city where they live
- Label cabinets/drawers
- Match the learning style with the instructional method
- Use repetition and rehearsal
- Have the student “overlearn” the material
- Teach note-taking techniques
- Give multisensory presentations



Classroom Strategies for Auditory Comprehension Difficulties

- Speak in shorter sentences – put one thought in each sentence
- Speak at a slower pace
- Encourage the individual to ask for clarification if it is confusing
- Support communication with simple gestures – like pointing or picking up an object
- Teach the student to ask questions to ensure comprehension
- Teach the student to request slower or repeated information as needed



Classroom Strategies for Expressive Language Difficulties

- Set up a discrete cueing system to let the person know they are off topic
- Avoid lengthy in-depth discussions
- Use wh- questions as structure for communication
- Follow rec's from ST



Parietal Lobe

Sense of touch

Differentiation of size, color, shape

Spatial perception

Visual perception



Classroom Strategies for Visual Perceptual Difficulties

- Place text to the side of where the person will see it
- Place objects on the side where the person may see it
- Decrease clutter and objects



Occipital Lobe

Vision



ACTIVITY



Classroom Strategies for Visual Difficulties

- Place text and objects in the person's view
- Decrease clutter
- Follow ophthalmologists' rec's
- Provide large print books or books on tape
- Limit amount of visual information on a page
- Give longer viewing times when introducing new concepts visually



Brain Stem

Breathing

Heart rate

Arousal/Consciousness

Sleep/Wake functions

Attention/Concentration



Classroom Strategies for Attention/Concentration Difficulties

- Make sure working environment is clear and quiet
- Engage the individual in tasks that are shorter in length initially
- Designate a space in the residence where the individual can work uninterrupted
- Assist the individual to keep personal space organized and free of clutter
- Determine if medications are causing attention/concentration difficulties – change time of day if ok with physician
- Arrange for rest periods, breaks as needed
- Reward on-task behavior
- Move the student's desk close to where the teacher is teaching from
- Give instructions in short units



Cerebellum

Balance

Coordination

Skilled motor activity



Classroom Strategies for Balance/Coordination Difficulties

- Assist the person with walking, transitioning positions, and ADL's
- Follow rec's from OT/PT
- Consider decreasing written assignments if fine motor difficulties are noticed



Other Classroom Strategies

- Prepare classmates for the student's return to school – show videos, read related books, peer groups
- Individual's with TBI should be in classrooms with the least amount of noise/visual distractions
- Consistent memory strategies should be used across all settings with all school personnel
- Note taker to assist with class lectures – or access to teacher's notes
- Tutor
- Extra time for taking tests with appropriate accommodations
- Daily planner for writing down assignments and communication with home – need to have identified person go through each section with student at the beginning of each day



Other Classroom Strategies continued

- Reduce assignments as necessary
- Provide students with an extra set of books – one for home and one for school
- Structured environment
- Daily communication with family
- Permanent pass to guidance office/crisis intervention teacher
- Buddy system – peers to prompt or remind
- Adapt tests
- Give extra instruction
- Allow use of a calculator
- AVOID changes in routine



Other Classroom Strategies continued

- Consider locker with a key rather than combination
- Preferential seating
- Early dismissal to allow time to change classes
- Morning check-in with teacher to review schedule, etc
- End of day check-in with teacher to review homework, etc
- Model appropriate social skills, manners, and politeness



BREAK



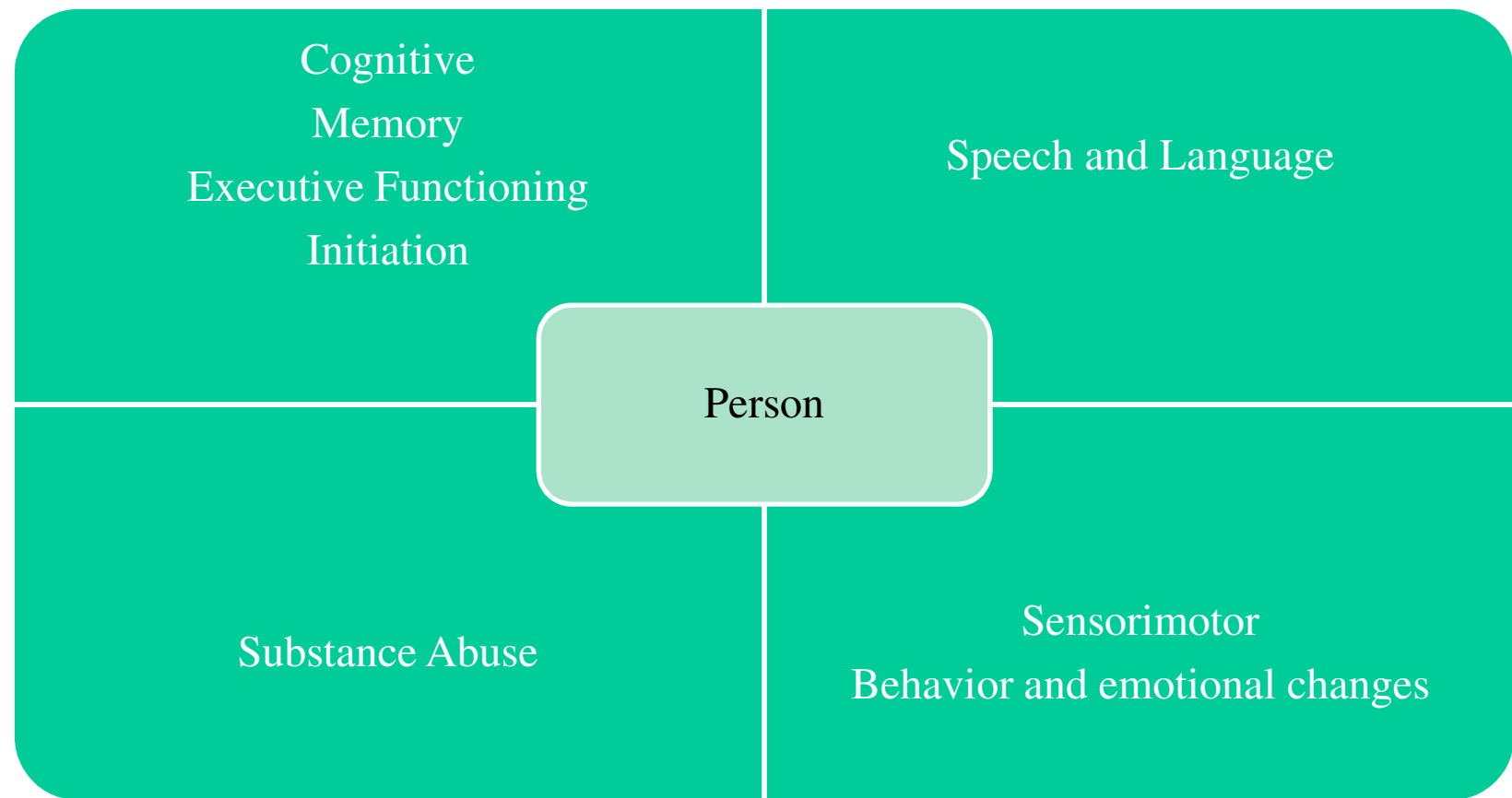
Video: Take Two After Traumatic Brain Injury



ACTIVITY



Lifelong Difficulties



Communication do's and don'ts

DO:

- Be accepting
- Take every issue seriously
- Address people age appropriately
- Convey respect
- Assist them in problem solving
- State relevant facts to those that need to know
- Remember that you don't know how they feel
- Get all the facts
- Be their equal
- Be sincere

DON'T:

- Be blame/fault finding
- Ignore an issue
- Talk down to anyone
- Patronize
- Take responsibility for their situations
- Gossip
- Say "I know how you feel"
- Make promises you can't keep
- Dominate



Resources for Students/Families

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- Mason, D. J., & Smith, S. X. (2005). *The Memory Doctor: Fun Simple Techniques To Improve Memory & Boost Your Brain Power*. Oakland, CA: New Harbinger Publications Inc.



Internet Resources

www.traumaticbraininjury.com

www.cdc.gov

www.biausa.org

www.brainline.org

www.brainrehab.org

www.neuroskills.com

www.tbi.org



Local and State Resources

Center for Disabilities

South Dakota Spinal Cord / Traumatic Brain Injury Research
Council

Community Transitions

Brain Injury Alliance of South Dakota

Brain Injury Support Groups – Sioux Falls, Aberdeen, Black
Hills

South Dakota Advocacy Services



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